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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,406	05/24/2001	Staffan Jonsson	1291-0183P	9183
2292	7590	04/05/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			DUONG, THO V	
			ART UNIT	PAPER NUMBER
			3743	

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/863,406

Applicant(s)

JONSSON ET AL.

Examiner

Tho v Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 20-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 25-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/24/01; 5/24/0.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 20-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 1/7/2005.

Applicant's election with traverse of group I in the reply filed on 1/7/2005 is acknowledged. The traversal is on the ground(s) that there is no serious burden placed on the examiner to consider all of the claims in a single application since a different field of search really does not exist with regard to the claims. This is not found persuasive because an apparatus and a method of making the apparatus are clearly two separated fields of search. A search for an apparatus does not require a search for a method of making the apparatus.

The requirement is still deemed proper and is therefore made FINAL.

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Sweden on 11/24/1998. It is noted, however, that applicant has not filed a certified copy of the Sweden 9804034-8 application as required by 35 U.S.C. 119(b).

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: the reference number (31) at line 4, on page 19, and reference numbers (48) and (44) at line 35 and 40 on page 20

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respectively in the specification are not shown in the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "41" has been used to designate both "the tank" and "a cylindrical plate heat exchanger" on page 20. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a) because they fail to show "the active solid substance is applied to one surface 21 of the heat exchanger and around the structure 25" and "the heat flow and the gas flow are directed perpendicularly to the larger exterior surfaces 21

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and 21a” as described in the specification. Though, reference numbers (21,23,25) are shown in figure 2a, figure 2a does not provide a structural detail for the examiner to understand how the solid is applied on the surface (21) and around the element (25). It appears in figure (2A) that solid (23) is a whole block placed between surface (21) and element (27). Furthermore, it is not understood how the heat flow and the gas flow directed in perpendicular with the surface while the heat exchanger medium (assume to be a heat flow) passes in parallel to the surface (described in paragraph 3, page 8). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed subject matter of “ must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The abstract of the disclosure is objected to because it appears that on page 1, line 6, the US. Patent number “5,440,889” appears to be a typographical error of “5,440,899”. Correction is required. See MPEP § 608.01(b).

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: “heat conducting thin or narrow material...penetrates in the layer” and “in the layer substantially parallel slot-shape channels are provided” are not described in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9,11,12,16,18,28,30 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claimed subject matter of “the substance is arranged on the inner surface as a layer and that a gas transport channel is arranged at an outer surface of the layer which is opposite said inner surface” renders the scope of the claim indefinite since it is not clear whether the inner surface is the inner surface of the vessel, or of the wall or of the plate or any element that located within the vessel. Furthermore, the claimed subject matter of “heat conduction through the layer and transport of vapor of the volatile liquid in the layer have substantially the same direction and/or substantially perpendicularly to the gas transport channel and/or to the inner surface” renders the scope of the claim indefinite since it is not clear how the transport of vapor of the volatile liquid can be in the layer while it has been previously claimed to be arranged at an outer surface of the layer and later to be perpendicular to the gas transport channel or the inner surface. Moreover, the substance as described in the specification,

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is not a conductive material, therefore, the claimed terminology of “heat conduction through the layer” renders the scope of the claim indefinite since it is not clear if applicant is claiming the substance as a heat conductive material and conducting heat in the same direction with a transport of a vapor that is located within the layer. At last, the alternative limitation of “have substantially the same direction and/or substantially perpendicularly to the gas transport channel and/or to the inner surface” renders the scope of the claim indefinite since the same direction and being perpendicular and the gas transport channel and the inner surface are not art equivalent, it is not clear whether applicant is claiming all the combination or just a single limitation.

Regarding claim 11, the claimed subject matter of “at least two phase transitions having ΔT :s located close to each other” renders the scope of the claim indefinite since it is not clear what ΔT :s means.

Regarding claims 4,7,12,16,28 and 30, the phrase "preferably" or “in particular” renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claims 30 and 31, the claimed subject matter of “heat conducting thin or narrow material” renders the scope of the claim indefinite since it is not clear whether applicant is claiming the shape of the heat conducting structure is thin and narrow or the material has a specific “thin or narrow” property.

Claim 1 recites the limitation "the inner surface" and “said inner surface” in lines 4,5 and 8. There are insufficient antecedent basis for this limitation in the claim.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3-5 and 29-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed subject matter of “heat conducting thin or narrow material...penetrates in the layer” is not described in the specification. Furthermore, the claimed subject matter of “in the layer substantially parallel slot-shape channels are provided” is not described in the specification.

Claims 1-19 and 25-31 are further rejected as can be best understood by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3,18,19,21,25 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Greiner (US 4,441,484). Greiner discloses (figures 7-13) a chemical heat pump comprising a vessel having at least a heat conducting wall (147); an absorbing material (141) having a constant thickness is arranged on a surface of the wall; parallel slot shape channels (183) are arranged to allow water to interact with the absorbing material; and air is passing through channels (143). Regarding claims 2 and 25, it has been held that the recitation an element is

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“capable of” performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In re Hutchison, 69 USPQ 138.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-5 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greiner in view of McCormack et al. (US 4,309,980). Greiner substantially discloses all of applicant's claimed invention as discussed above except for the limitation that a thin structure attached to a surface of an absorbing material wall and penetrates in the absorbing layer. McCormack discloses fins (32) are attached on a surface of an absorbing material wall structure and penetrates in the layer (24) for the purpose of increasing the heat transfer surface area of the absorbing material wall. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use McCormack's teaching in Greiner's system for the purpose of increasing the heat transfer surface area of the absorbing material wall.

Claims 6-14 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greiner in view of Foulke (US 4,146,013). Greiner substantially discloses all of applicant's claimed invention as discussed above except for the limitation that the absorbing material is CoCl₂. Foulke discloses (table 1 and column 3, lines 33-53) and a solar heat pump that utilizes

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Cobalt Chloride as an absorbing material for the purpose of producing a large energy per mole of the absorbing material. CoCl_2 clearly possesses the properties as claimed as indicated in the applicant's specification. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Foulke's teaching in Greiner's heat pump for the purpose of producing a large energy per mole of the absorbing material. Regarding claim 9, the method of forming the substance is not germane to the issue of patentability of the substance itself. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this case, the CoCl_2 substance in the product by process claim is the same as CoCl_2 in the prior art.

Claims 15-16 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greiner and/or Foulke as applied to claims 10 and 25 above, and further in view of Inagaki et al. (US 5,768,910). Greiner and Foulke substantially disclose all of applicant's claimed invention as discussed above except for the limitation that the absorbing material is at least 15% in porous state. Inagaki discloses (figure 6 and column 3, lines 1-14) an absorption heat pump that has an absorbing material in a porous state with the porosity volume of 60% for the purpose of obtaining an absorbing material that has a large pumping heat quantity per volume. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Inagaki's teaching in the combination device of Greiner and Foulke or Greiner for the

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purpose of obtaining an absorbing material that has a large pumping heat quantity per volume. Regarding claim 26, Greiner further discloses that the layer (141) is thin enough to be flexed easily to accommodate any contraction and expansion. Furthermore, applicant has not disclosed any criticality or any unexpected result of having this 10 mm thickness. Accordingly, the use of 10 mm thickness is deemed to be a design consideration which fails to patentably distinguish over the prior art of Greiner.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yasuda et al. (US 4,616,692) discloses a method of recovering of reaction.

Hormansdorfer (US 5,085,790) discloses a phase change material and use thereof.

Rockenfeller et al. (US 5,161,389) discloses an absorbing material for a chemical heat pump.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F (first Friday off).

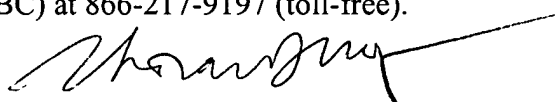
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet can be reached on 571-272-4791. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TD
April 4, 2005



Tho v Duong
Examiner
Art Unit 3743